BEST PRACTICES

FOR

LIGHT INDUSTRIAL

OPEN AIR RETAIL

Introduction

BEST Practices represent minimum threshold requirements for all levels of certification.

Applicants are required to **upload** documentation to support **each BEST Practice** into the online assessment prior to requesting verification.

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BEST Practice 1: Preventative Maintenance Program

Is a Preventative Maintenance Program in place at the building?	
Explanation & Evaluation	**Description:** Preventative maintenance recognizes that certain systems and their components require scheduled periodic maintenance, as well as overhauling or replacement after a certain age, at certain intervals, or due to specific causes. The Preventative Maintenance Program is a systematic approach that outlines what equipment under the landlord's control must be reviewed, the corrective action that must be taken and how frequently this must occur. **Requirements:** The Preventative Maintenance Program must outline when preventative and corrective maintenance is required to be performed on the building's equipment. Demonstration of implementation is required. The program must have been updated in the last five (5) years. **Additional Information:** Preventative maintenance involves inspecting and testing units for operation and faults. Corrective maintenance involves repairing a unit to bring it back to operability at its most efficient capability.

REQUIREMENT DETAILS: Preventative Maintenance Program

This question is a BEST Practice and is required for all levels of certification.

It is necessary to undertake preventative maintenance to maintain optimal performance of the building's mechanical, electrical, and ventilation systems and their components. The building systems require periodic maintenance throughout their life cycle in addition to the need for overhauling, modernization, or replacement, at certain age or intervals, or due to specific issues or causes. These must be outlined specifically in a Preventative Maintenance Program.

The Preventive Maintenance Program must include the methodology and record for all actions that are necessary to maintain the optimal functioning of the building's systems and their components. The required maintenance procedures will be unique to each property and the systems within these facilities.

The Preventative Maintenance Program must contain the following:

1. An inventory of which system or component must be reviewed and the type of action that is required (e.g., by room or by equipment type);
2. Guidelines on how frequently these actions must be taken (e.g., monthly, quarterly, yearly, etc.). These guidelines should be based on standards such as manufacturer specifications, code requirements and industry best practices;
3. Documentation that these actions have been taken (e.g., via signature and date);
4. Confirmation that follow-up action has been taken when warranted; and
5. Record updates as new equipment is added or removed.

In addition to manual recording of this information many buildings may have online tracking software that outlines and tracks the Maintenance Program. These are acceptable if the software can monitor and track items 1-5 listed above.

The program can be common to a portfolio or campus of buildings however implementation must be building-specific.

The following is an example of a Preventative Maintenance Program. The items listed below constitute a sample only.

System	Component	Action Taken	Date Completed	Signature	Comments
Annually					
HVAC	Outdoor Air Intakes	Clear obstructions, bird droppings, standing water, proximity to cooling towers, trash compactors, exhausts and other pollutant sources.			
HVAC	Cooling towers	Water treatment functioning as intended.			
FIRE	Fire Systems	Open fire dampers.			
HVAC/ ELEC	Measurement Devices and Sensors	Calibration of sensors (temperature, humidity, pressure, occupancy, photocell etc.).			
ELEC.	Controls (digital, pneumatic)	Ensure the proper functioning of all controls systems.			
Semi-annually					
HVAC	Building Equipment	Floor and equipment drain traps – properly sealed.			
HVAC	HVAC	Air quality measurements in select occupied areas of the building.			
Quarterly					
ELEC	Controls (digital, pneumatic)	Operation of outdoor damper actuators.			
ELEC	Lighting	Ensure all emergency lighting is functioning properly.			
Monthly					
HVAC	Ventilation	Air filter loading.			
ELEC.	Lighting	Change lamps as required.			
ELEC.	Generator	Generator testing.			

Additional references: ASHRAE 62.1-2010 "The Standards for Ventilation and Indoor Air Quality".

BEST Practice 2: Energy Assessment

Has an ASHRAE Level 1 Energy Assessment been conducted in the last five (5) years?	
Explanation & Evaluation	**Description:** An ASHRAE Level 1 assessment refers to a simple audit of the building's configuration and energy systems. If focuses on the identification of the potential for energy efficiency improvements. **Requirements:** An ASHRAE Level 1 Energy Assessment must have been conducted on the building in the last five (5) years. The Energy Assessment report must contain the following elements: • Analysis of energy consumption through monthly utility bill review and benchmarking. For benchmarking purposes utility bills must cover a minimum of 12 months of continuous data. If major renovations or retrofits to the building systems have occurred, use data after the time of major renovation, if possible. Major renovations include upgrades to mechanical systems, upgrades to building envelope systems and electric system upgrades including procurement of new lighting for more than 50% of the building's lighting fixtures. • List major energy-consuming equipment. • Prioritized list of proposed low-cost and no cost energy conserving measures (ECMs) to enable greater energy efficiency. • Provision of estimates of financial savings the building owner will realize as a result of investing in ECMs. At a minimum, savings and cost estimates should be based on a generalized understanding of the systems. Data used for this assessment must represent complete building data for all building spaces and uses. **Additional Information:** The Accepted Equivalent is available for buildings where 75% or more of the building's energy is purchased directly by tenants or if the building has been occupied for fewer than two (2) years.

REQUIREMENT DETAILS: ENERGY ASSESSMENT

This question is a BEST Practice and is required for all levels of certification.

To meet this BEST Practice, the Energy Assessment must include the following information:

1. Owner/manager information;
2. Building name and address;
3. Building description;
4. Energy use analysis must include:
   - Utility billing analysis including cost and consumption history compiled from utility bills.
   - Energy intensity benchmarking observations including a calculation of annual energy use divided by building area (to obtain building performance indices such as MJ/m²/yr or kWh/ft²/yr for each energy source). Specify which floor area is being used (e.g. gross floor area, net floor area, gross leasable area, etc.) to improve the validity of comparison.
   - The utility bills must cover a minimum of 12 months of continuous data.

5. Summary of major equipment and type of lighting systems in the building;
6. Recommended Energy Conservation Measures:
    - List of identified retrofit and operation and maintenance energy conservation measures.
    - Explore sub-meter opportunities for large energy-using tenants.
7. Basic estimates of financial savings the building owner will realize because of investing in ECMs; and
8. Date of the assessment and signature of the person responsible for conducting the work:
    - The Energy Assessment must have been conducted within the last five (5) years from the date of verification.

Important Notes

i. The Energy Assessment may be completed by "in-house" technical staff or by a third-party consultant (e.g. professional engineer or other knowledgeable energy consultant).

II. No major renovations to be performed after the date of the energy assessment. Major renovations include upgrades to mechanical systems, upgrades to building envelope systems and electric system upgrades including procurement of new lighting for more than 50% of the building's lighting fixtures.

Accepted Equivalent A: Energy Study Report

Buildings that have been occupied for fewer than two (2) years may utilize an energy study report that was prepared during the design of the building in lieu of a post-construction energy audit report. This report must have shown simulated energy consumption for different design scenarios, and identify which options were chosen for the actual construction. Applicants must be able to demonstrate that these energy-reduction features were incorporated into the building.

Accepted Equivalent B: Energy Communications Plan

Where 75% or more of the building's energy is purchased directly by tenants (e.g., most industrial and retail buildings) applicants may prepare an Energy Communication Plan in lieu of an Energy Assessment. Evidence of implementation is required to meet this BEST Practice.

This communication plan must document means of encouraging energy conservation initiatives by occupants. For example, the communication plan may include the following offerings by the landlord/ management company:

- Encouragements to share energy consumption information with landlord.
- Providing walk through energy audit or assessment services.
- Delivery of "energy conservation tips" brochures to occupants.
- Energy conservation seminars for tenants / occupants.
- Other communication tools: posters, "turn it off stickers", etc.

Evidence of implementation may include the following:

- Agendas and notes from tenant-building management meetings.
- Copies of marketing materials used to promote energy conservation within the building.
- Copies of communication to tenants/occupants regarding energy conservation.
- Copies of energy assessments or audits performed in tenant spaces.

BEST Practice 3: Energy Management Plan

Is an Energy Management Plan in place at the building?	
Explanation & Evaluation	This question is a BEST Practice and is required for all levels of certification. **Description:** Energy management is the continuous process of managing behavioral, organizational and technical change to improve the building's energy performance. **Requirements:** The Energy Management Plan must have been reviewed and updated in the last three (3) years. Create a plan that identifies Energy Conservation Measures (ECM) for the building (such as those provided in the Energy Audit, as available). For each initiative, identify the following: • Whether a particular ECM will be pursued; • The person responsible for the implementation of the ECM; • The budget associated with the ECM; and • A timeline for completion. If a particular measure will not be followed-up for the building, indicate why this is the case. Although demonstration of implementation is preferable, it is not necessary. The plan can be common to a portfolio or campus of buildings however building-specific information is required. **Additional Information:** In the case of Recertification, building managers are expected to demonstrate which ECMs listed in the previous Reduction Management Plan have been implemented since certification. The Accepted Equivalent is available for buildings that have been occupied for fewer than two (2) years.

REQUIREMENT DETAILS: Energy Management Plan

This question is a BEST Practice and is required for all levels of certification.

Energy management is the continuous process of managing behavioural, organizational and technical change to improve your organization's energy performance.

The Energy Management Plan must identify and document building-specific measures to improve energy efficiency and reduce demand. These measures should be based on a clearly identified performance target (using quantifiable performance indicators), identified through the energy audit or the operational staff.

The Energy Management Plan must have been reviewed and updated in the past three (3) years.

All actions must be evaluated for their technical feasibility and expected results (estimated energy savings and pre-feasibility study) as well as financial feasibility (through an economic cost/benefit analysis such as simple payback or ROI). These actions mush be integrated into a timeline.

A documented plan for implementing energy conservation strategies is illustrated in the table below as an example of minimum requirements. A more detailed table is strongly encouraged, especially one which allows for continuous energy tracking.

Energy Management Plan – Sample Form

No.	Proposed Measure	Budget	When	Expected Return	Responsible Person(s)
1	Day time cleaning	$ --.00	2017	4 years	Mathieu Kim
2	Re-commissioning feasibility study	$ --.00	2018	18 months	Alexa Moreno

These practices are clearly stated as minimal best practices according to the *2011 ASHRAE Handbook HVAC applications* (chapter 36; chapter 41). If the energy reduction plan is done through an ESCO project, energy savings should be measured according to EVO Standards (Efficiency Valuation Organization) and *ASHRAE guideline 14-2002 Measurement of energy and demand savings.*

A comprehensive roadmap for developing and implementing an Energy Management Plan is available in the Energy Management Best Practices Guide – For Commercial and Institutional Buildings.

Accepted Equivalent: Energy Commissioning Plan

Buildings that have been occupied for fewer than two (2) years can meet this BEST Practice by demonstrating that an Energy Commissioning Plan has been put into place. The intent of this Accepted Equivalent is to ensure that the building's major systems and equipment are being optimized/fine-tuned for specific seasonal requirements, occupancy variability, etc.

The Energy Commissioning Plan must clearly demonstrate that the following actions have been considered and implemented in the previous 12 months – as per *2011 ASHRAE Handbook HVAC applications* (chapter 36; chapter 41):

1. An energy measurement or assessment plan for major operating systems and equipment AND an energy bill evaluation and follow up plan;
2. If a deficiency report has been generated (from the construction process) regarding building systems, plans to address these deficiencies must be included in the Energy Commissioning Report;
3. A person identified as responsible for the building energy performance;
4. Training for operations staff on performing the above.

Important Notes:

i. The Energy Commissioning Plan may be created and implemented by an "in-house" operational staff or by a third-party consultant (e.g. professional engineer or other knowledgeable energy consultant).
ii. The energy measurement or assessment plan for major systems and equipment must include all operating systems and equipment that represent the greatest proportionate use of energy in the building (e.g., heating system; cooling system, etc.).
iii. It is not always possible to assess the operations of major operating systems and equipment through the ongoing review of energy bills. Other methods of assessment include: tenant satisfaction surveys, control sequence reviews, etc.
iv. The Energy Commissioning Plan must specifically identify the individuals responsible for the energy measurement of major operating systems and equipment, as well as those individuals responsible for reviewing energy billings.
v. One person must be identified as being responsible for the overall energy commissioning plan.
vi. Although demonstration of implementation is preferable, it is not necessary.
vii. The plan can be common to a portfolio or campus of buildings however building specific information is required.

BEST Practice 4: Energy Reduction Target

Is an energy reduction target in place at the building?	
Explanation & Evaluation	**Description:** Clear, long-term outcome-oriented targets can help shape expectations and create the conditions in which all actors have the confidence to develop solutions to common problems. By establishing targets and indicators, progress can be assessed, and appropriate actions taken. **Requirements:** An energy reduction target must be identified along with a timeframe for completion. Targets must be put into writing, signed by senior management and reviewed annually, as well as be integrated into the Energy Management Plan. **Additional Information:** The energy reduction target can be established to encompass either all utilities as a whole or divided into each type (electricity, gas) of utility under the property owner's control. In the case of Recertification, building managers are expected to demonstrate what targets have been reached since certification. The Accepted Equivalent is available for buildings where 75% or more of the building's energy is purchased directly by tenants.

REQUIREMENT DETAILS: Energy Reduction Target

This question is a BEST Practice and is required for all levels of certification.

Applicants will not be evaluated on whether they have reached the stated targets; rather the intent of this BEST Practice is to encourage building owners and managers to review available historical consumption data while also taking into consideration planned upgrades or improvements to set realistic targets.

Targets must be written and signed by senior management. Targets must be reviewed annually and be inserted into the Energy Management Plan.

Recertified buildings are expected to review previously set targets, demonstrate which ones were met, as well as provide a brief explanation regarding targets that were not met.

Accepted Equivalent: Energy Reduction Target Gap Analysis

Where 75% or more of the building's energy is purchased directly by tenants (e.g., multi-tenant office, industrial or retail buildings) applicants may prepare an Energy Reduction Target Gap Analysis.

An Energy Reduction Target Gap Analysis allows the building owner or manager to understand where gaps exist in the available data. Once these gaps are filled, the building owner and manager will benefit from a better understanding of exactly how much energy is consumed in the building, thereby allowing for targets to be set.

This analysis must include information on the following:

1. Owner/manager information;
2. Building name and address;
3. Building description;
4. Base building annual energy usage summary; and

5. Tenant space analysis:
    - Summary of all tenant spaces.
    - Information on annual energy usage for all tenant spaces, where available.
    - Summary of tenant spaces where energy usage information is not available.
    - Documentation showing whether the missing energy data is being, or has been, sought after (i.e. Green Button Share my Data request sent etc.).

BEST Practice 5: Water Assessment

Has a Water Assessment been conducted in the last five (5) years?	
Explanation & Evaluation	**Description:** A water assessment refers to a simple audit of the building's configuration and water systems. It focuses on the identification of potential water conserving measures. **Requirements:** A water assessment must have been conducted on the building in the last five (5) years. The water assessment report must contain the following elements: • Analysis of water consumption through monthly utility bill analysis and benchmarking. For benchmarking purposes utility bills must cover a minimum of 12 months of continuous data. • Assessment and list of current performance of water-consuming equipment. • Prioritized list of proposed water conserving measures (WCM's) to enable greater water efficiency. • Provision of estimates of financial savings the building owner will realize as a result of investing in WCMs and the simple payback period. **Additional Information:** The Accepted Equivalent is available for buildings where 75% or more of the building's water is purchased directly by tenants or if the building has been occupied for fewer than two (2) years.

REQUIREMENT DETAILS: Water Assessment

This question is a BEST Practice and is required for all levels of certification.

To meet this BEST Practice, the Water Assessment must include the following information:

1. Building Information
2. Owner/manager information
3. Building name and address
4. Building description
5. Date of water assessment
6. Water use analysis must include:
    - Water billing analysis including cost and consumption history compiled from utility bills.
    - Water intensity benchmarking observations including a calculation of annual water use divided by building area (to obtain a building performance index such as $m^3/m^2/yr$). Specify which floor area is being used (e.g., gross floor area, net floor area, gross leasable area, etc.) to improve the validity of comparison.
    - The utility bills must cover a minimum of 12 months of continuous data.

7. Water-using equipment inventory, such as:
    - Domestic water fixtures (faucets, toilets, urinals).
    - Water using appliances (dishwasher, washing machine etc.).
    - Cooling equipment including cooling towers, equipment “once-through” cooling and customized tenant cooling equipment.
    - Landscape irrigation equipment.
    - Water use for humidification equipment.
    - Water use from heating equipment (boiler blowdown, steam production and condensate management).
    - Any specialized equipment (including production use and process loads).
8. Recommended Water Conservation Measures (WCMs):
    - List of identified retrofit and operation and maintenance water conservation measures.
    - Explore sub-meter opportunities for large water-using tenants.
9. Basic estimates of financial savings the building owner will realize because of investing in WCMs.
10. Date and signature of the person responsible for conducting the work:
    - The Water Assessment must have been conducted within the last five (5) years from the date of verification.

Important Notes:

i. The Water Assessment may be completed by “in-house” technical staff or by a third-party consultant (e.g., a professional engineer or other knowledgeable water consultant).
ii. The Water Assessment report may be combined with the Energy Assessment report.

Accepted Equivalent A: Water-using equipment inventory

Buildings that have been occupied for fewer than two (2) years OR have buildings with no water meter may submit a Water-using Equipment Report which can be created with information contained in the building’s Operation and Maintenance Manual, As Built Drawings and Commissioning Report.

The Water-using Equipment Report must include the following information:

1. Building Information;
2. Owner/manager information;
3. Building name and address;
4. Building description;
5. Water-using Equipment Inventory: An inventory/survey of all water consuming equipment on facility premises and their locations throughout the building, such as:
    - Domestic water fixtures (faucets, toilets, urinals).
    - Water using appliances (dishwasher, washing machine etc.).
    - Cooling equipment including cooling towers, equipment “once-thru” cooling and customized tenant cooling equipment.
    - Landscape irrigation equipment.
    - Water use for humidification equipment.

- Water use from heating equipment (boiler blowdown, steam production and condensate management).
- Any specialized equipment (including production use).

6. Baseline consumption of this equipment based on data from the building automation system and water sub-meters OR based on equipment performance estimates informed by manufacturer specifications PLUS an estimated calculation of the equipment's annual consumption, such as:
    - Sinks and faucets: aerator output multiplied by estimation of annual use.
    - Toilets and urinals: flush output multiplied by estimation of annual use.
    - Showerhead: output of the showerhead multiplied by estimation of annual use.
    - Cooling towers: estimate make-up water required to compensate for losses due to evaporation, drift and splash-out, leaks and overflow, and bleed or blowdown.
    - Evaporation: Directly related to heat transfer and operational management. Assume approximately 1.8 GPH (centrifugal) or 3.7 GPH (absorption) per ton of cooling multiplied by the load percentage.
    - Bleed/blowdown: Losses represent a non-linear function of the concentration cycles (purity of make-up water over the purity of the recirculating water). Higher cycles mean fewer blowdowns are needed.
    - Drift and splash-out: Losses are not significant for well-maintained towers under normal conditions. Assume approximately 0.014 GPH per ton of cooling or about 0.008% of recirculating water.
    - Leaks and overflows: These are difficult to measure or estimate and losses are not significant in well-maintained towers. Visual inspection for leaks should be performed.
    - Irrigation system: output of the sprinklers multiplied by operating hours.
7. Recommended Water Conservation Measures:
    - List of identified retrofit and operation and maintenance water conservation measures.
    - Estimated costs, savings and payback period of measures.
    - Establish water reduction targets.
    - Explore feasibility of installing a base building meter if not present.
    - Explore sub-meter opportunities for the cooling tower make-up line and other major water consuming equipment.
8. Date and signature of the person responsible for conducting the work.
    - The Water-using equipment inventory must have been conducted within the last five (5) years from the date of verification.

Accepted Equivalent B: Water Communications Plan

Where 75% or more of the building's water is purchased directly by tenants (e.g., most Light Industrial and Open Air Retail buildings), applicants may prepare a Water Communication Plan in lieu of a Water Assessment report. Evidence of implementation is required to meet this BEST Practice.

This communication plan must document means of encouraging water conservation initiatives by occupants. For example, the communication plan may include the following offerings by the landlord/ management company:

- Providing walk through water audit or assessment services of tenant spaces.
- Delivery of “water conservation tips” brochures to occupants.
- Water conservation seminars for tenants/occupants.
- Other communication tools: posters, “shut-it-off stickers”, etc.

Evidence of implementation may include the following:

- Agendas and notes from tenant-management team meetings.
- Copies of marketing materials used to promote water conservation measures.
- Copies of communication to tenants/occupants regarding water conservation tips/opportunities.
- Copies of water use assessments or audits done in tenant spaces.

BEST Practice 6: Water Management Plan

Is a Water Management Plan in place at the building?	
Explanation & Evaluation	**Description:** Water management is the continuous process of managing behavioural, organizational and technical change to improve the building's water performance. **Requirements:** The Water Management Plan must have been reviewed and updated in the last three (3) years. Create a plan that identifies Water Conservation Measures (WCM) for the building (such as those provided in the Water Assessment, as available). For each initiative, identify whether a particular WCM will be pursued, the person responsible for its implementation, the associated budget and a timeline for completion. If a particular measure will not be followed-up for the building, indicate why this is the case. Although demonstration of implementation is preferable, it is not necessary. The plan can be common to a portfolio or campus of buildings however building-specific information is required. **Additional Information:** In the case of Recertification, building managers are expected to demonstrate which WCMs listed in the previous Water Management Plan have been implemented since certification. The Accepted Equivalent is available for buildings that have been occupied for fewer than two (2) years.

REQUIREMENT DETAILS: Water Management Plan

This question is a BEST Practice and is required for all levels of certification.

The Water Management Plan should identify and document building-specific measures to improve water efficiency and reduce demand. These measures should be based on a clearly identified performance target (using quantifiable performance indicators), identified through the water assessment or the operational staff.

The Water Management Plan must have been reviewed and updated in the past three (3) years.

All actions must be evaluated for their technical feasibility and expected results (estimated water savings and pre-feasibility study) as well as financial feasibility (through an economic cost/benefit analysis such as simple payback or ROI). These actions mush be integrated into a timeline.

A documented plan for implementing water conservation strategies is illustrated in the table below as an example of minimum requirements. A more detailed table is strongly encouraged, especially one which allows for continuous water tracking.

Water Management Plan – Sample Form

No.	Proposed Measure	Budget	When	Expected Return	Responsible Person(s)
1	Low-flow fixtures	$ --.00	2017	4 years	Mathieu Kim
2	Non-potable irrigation	$ --.00	2018	18 months	Alexa Moreno

Accepted Equivalent: Water Commissioning Plan

Buildings that have been occupied for fewer than two (2) years can meet this BEST Practice by demonstrating that a Water Commissioning Plan has been put into place. The intent of this Accepted

Equivalent is to ensure that the building's major systems and equipment are being optimized/fine-tuned for specific seasonal requirements, occupancy variability, etc.

The Water Commissioning Plan must clearly demonstrate that the following actions have been considered and implemented in the previous 12 months:

1. A water measurement or assessment plan for major operating systems and equipment as well as a water bill evaluation and follow up plan;
2. If a deficiency report has been generated (from the construction process) regarding building systems, plans to address these deficiencies must be included in the Water Commissioning Report;
3. A person identified as responsible for the building water performance;
4. Training for operations staff on performing the above.

Important Notes:

i. The Water Commissioning Plan may be created and implemented by an "in-house" operational staff or by a third-party consultant (e.g., professional engineer or another appropriate consultant).

ii. The water measurement or assessment plan for major systems and equipment must include all operating systems and equipment that represent the greatest proportion of water consumption in the building (e.g., district hot water, cooling towers, etc.)

iii. It is not always possible to assess the operations of major operating systems and equipment through the ongoing review of water bills. Other methods of assessment include: tenant satisfaction surveys, control sequence review, etc.

iv. The Water Commissioning Plan must specifically identify the individuals responsible for the water measurement of major operating systems and equipment, as well as those individuals responsible for water bill review.

v. One person must be identified as being responsible for the overall water commissioning plan.

vi. Although demonstration of implementation is preferable, it is not necessary.

vii. The plan can be common to a portfolio or campus of buildings however building specific information is required.

BEST Practice 7: Indoor Air Quality Monitoring Plan

Is an Indoor Air Quality Monitoring Plan in place at the building?	
Explanation & Evaluation	**Description:** Indoor Air Quality (IAQ) is achieved through the selection of appropriate and achievable air quality goals, regular surveillance and testing to verify HVAC performance and hygiene, efficient and effective procedures for addressing occupant IAQ concerns, and training for all property management and maintenance personnel. **Requirements:** The Air Quality Monitoring Plan must contain the following elements: • Determine and state the IAQ goals for the building including targets for air quality parameters such as carbon dioxide, carbon monoxide, temperature, relative humidity, dust, volatile organic compounds and other known contaminants of concern. • Set a schedule for HVAC inspection and maintenance tasks to ensure good hygiene (cleanliness, no standing water, etc.). • Identify HVAC systems that will impact the IAQ goals listed above. • Create a preventative maintenance schedule for these systems (may overlap with the Preventative Maintenance Program BEST Practice). Equipment and systems should be checked at least annually. • Develop procedures for responding to occupant IAQ concerns, including identifying key personnel and their responsibilities, contact information, documentation, and follow-up plan (may overlap with Occupant Service Request Program BEST Practice). • Identify training requirements for property management and building maintenance staff relating to IAQ. • Review the plan annually and update as necessary. Where ventilation systems are owned and maintained by the tenants, the building owner/manager must provide an Indoor Air Quality Monitoring Plan for their use. Although demonstration of implementation is preferable, it is not necessary. The plan can be common to a portfolio or campus of buildings however building-specific information is required. **Additional Information:** The Accepted Equivalent is available for buildings where ventilation systems are owned and maintained exclusively by the tenants. In these cases, the building owner or manager must provide tenants with an Indoor Air Quality Monitoring Plan for their use. Refer to the US EPA I-BEAM for more information on developing an IAQ Monitoring Plan.

REQUIREMENT DETAILS: Air Quality Monitoring Plan

This question is a BEST Practice and is required for all levels of certification.

The Air Quality Monitoring Plan is a guidance document that will inform future action. Implementation is not required as a part of this BEST Practice. Rather, this BEST Practice is focused on intent.

Below are suggestions to inform the components of the IAQ Monitoring Plan.

Suggested performance goals for IAQ include the following for frequently occupied indoor spaces:

- Carbon dioxide not exceeding 700 ppm above ambient (ASHRAE 62.1);
- Carbon monoxide not exceeding 9 ppm (ASHRAE 62.1);
- Total volatile organic compound concentrations do not exceed 1000 µg/m^3 (440 ppb) (Health Canada);
- PM_{10} does not exceed 50 µg/m^3 (ASHRAE 62.1);
- Temperature in the range of 21 – 27 C°, taking into account seasonal variances, relative humidity (ASHRAE 55);
- Relative humidity in the range of 30-60% (USEPA I-BEAM) or more than 20% (CSA);
- HVAC system interiors are in good general condition, clean, free of standing water and debris, and have no visible suspect mould growth.

If other local regulations exist for the above performance criteria, the most stringent will apply.

Regarding the preventative maintenance schedule for HVAC systems and equipment that will impact IAQ, include language regarding how environmental quality performance will be verified. At a minimum, testing should be conducted over a typical workday, taking into account fluctuations in contaminant levels that may occur. Testing should be conducted, at a minimum, in the morning and afternoon.

The US EPA provides a free sample Indoor Air Quality audit checklist.

Accepted Equivalent: Indoor Air Quality Monitoring Plan for Tenants

In the case where all ventilation systems and equipment are owned and operated exclusively by the tenants, the building owner or manager must provide tenants with suggested guidelines on how to prepare an Indoor Air Quality Monitoring Plan based on the requirements listed above. Although ensuring adherence by the tenants to this plan is highly encouraged, it is not required to meet this BEST Practice.

Important Notes:

i. The person developing the Indoor Air Quality Monitoring Plan must be competent based on the following criteria (aligned with the definition of various regional Occupational Health and Safety Acts):
   - Adequate qualifications – the person has a good working knowledge and understanding of the legislation surrounding indoor environmental quality (i.e., training certificates or educational background in hygiene, occupational health and safety, environmental engineering, building science or similar);
   - Suitable training – the person must have training that is appropriate to implementing an indoor environmental quality monitoring program and which comply with regional minimum safety training requirements; and
   - Sufficient experience – the person must have enough experience to safely perform the work without supervision or with only a minimal degree of supervision.

ii. Although demonstration of implementation is preferable, it is not necessary.

iii. The plan can be common to a portfolio or campus of buildings however building specific information is required.

BEST Practice 8: Occupant Service Request Program

Is an Occupant Service Request Program in place?	
Explanation & Evaluation	**Description:** Service request for maintenance are used to identify issues pertaining to the building. Having a formal process in place allows tracking of various Key Performance Indicators such as critical equipment maintenance and critical building maintenance. **Requirements:** Establish an Occupant Service Request Program for the building. The Program must include the following components: • A mechanism to ensure that all service requests are reviewed and acted upon within 1-2 weeks, unless otherwise specified (e.g., critical area or critical equipment). • Information on the origins of the service request; • Information on the status of the service request (e.g., in progress, resolved, etc.); and • Information on the corrective action taken. Documentation must be kept on file for a minimum of three (3) months. Demonstration of implementation is required. The program can be common to a portfolio or campus of buildings however implementation must be building-specific. **Additional Information:** Service requests can be made by all building occupants, including tenants, visitors and staff.

REQUIREMENT DETAILS: Occupant Service Request Program

This question is a BEST Practice and is required for all levels of certification.

Building management must have in place a documented means for addressing occupant (tenant and building staff) concerns regarding maintenance service requests. Visitors to the building may also log service requests. Such service request logs can provide evidence of occupant dissatisfaction and its causes. Trends in complaint rates over time may indicate occupant reactions to changes in building operation.

The Occupant Service Request Program must have a mechanism in place for recording the following information:

- Incident log number;
- Occupant name, company and department, location in building.
- Date complaint was received;
- Description of complaint;
- Suggested cause;
- Summary of problem;
- Actions completed;
- Date of occupant interview (if applicable);
- Remedial action report;
- Date of when occupant was advised about actions taken;

- Additional details (as required).

Service requests must be reviewed and acted upon within 1-2 weeks, unless otherwise specified (e.g., critical area or critical equipment).

Documentation must be kept on file for a minimum of three (3) months. Demonstration of implementation is required. The program can be common to a portfolio or campus of buildings however implementation must be building-specific.

BEST Practice 9: Hazardous Building Materials Management Program

Is a Hazardous Building Materials Management Program in place at the building?	
Explanation & Evaluation	**Description:** The presence and condition of hazardous building materials must be identified and managed for the safety of building occupants. **Requirements:** The Hazardous Building Materials Management Program must include: • Inventory of all building materials known or presumed to contain asbestos, lead, PCBs, silica and mercury (at a minimum); • Inspection of known/presumed asbestos-containing materials within the past 12 months, where present; • Inspection of materials known/presumed to contain lead, mercury, PCBs or other hazardous building materials or equipment within the last three (3) years, where present; • Corrective actions identified during the inspections completed; • Management protocols for unexpected disturbance of asbestos; • Pre-construction assessment of materials and equipment impacted by renovation activities for the presence of hazardous building materials; • A proactive plan for the abatement of accessible asbestos-containing materials (including in the areas above acoustic tiles) and PCB-containing equipment and ballasts; • Awareness training for building maintenance staff on asbestos safety; and • Review and updating as changes occur to the location of hazardous materials in the building, at a minimum every three (3) years. As with any management program, one should strive for continuous improvement. Review of the management program must occur as changes to the responsibilities, personnel, plans, quantity or condition of the materials occur. Demonstration of implementation is required. The program can be common to a portfolio or campus of buildings however implementation must be building-specific.

REQUIREMENT DETAILS: Hazardous Building Materials Management Program

This question is a BEST Practice and is required for all levels of certification.

To mitigate the risk of exposure to hazardous materials associated with building materials, equipment and finishes, the building owner/manager must develop a plan to periodically inspect the condition of these materials, conduct safe repair, assess disturbance or complete removal of these materials, and to adequately train personnel in contact with hazardous materials.

The Hazardous Building Materials Management Program must include:

1. Inventory of all building materials known or presumed to contain asbestos, lead, PCBs, silica and mercury (at a minimum).

The survey for hazardous building materials is performed typically room by room, or by area. Samples may be required to confirm presence of hazardous building materials. All building owners or tenants must verify

sampling requirements with regional specific regulation governing sampling methodology for hazardous building materials.

All building materials should be presumed to contain asbestos and all paint should be presumed to contain lead until analysis is performed at an accredited laboratory (see Notes for the list of acceptable accreditations). The presence of these substances must be identified prior to any renovation or demolition.

Building materials containing asbestos must be identified. Local regulations prescribe the type of materials to be sampled, the number of samples of each material to be analyzed and the minimum quantity of asbestos fibres by dry weight for the material to be considered asbestos-containing. A comprehensive survey must have the following information at a minimum for verification purposes:

- Type of hazardous materials present in the building;
- Location of the hazardous materials;
- The extent of the hazardous material within the building;
- The approximate quantity of hazardous material in each area.

ASTM E2356 - 14 "Standard Practice for Comprehensive Building Asbestos Surveys" provides guidelines on completing an asbestos survey.

2. Inspection of known/presumed asbestos-containing materials within the past 12 months, where present.

The condition or state of the asbestos-containing materials (e.g., poor, fair, good) must be reviewed.

3. Inspection of materials known/presumed to contain lead, mercury, PCBs or other hazardous building materials or equipment within the last three (3) years, where present.
4. Corrective actions identified during the inspections completed.

The program must include a list of recommended actions to meet regional specific regulatory requirements with respect to maintenance, inspection, training and abatement.

5. Management protocols for unexpected disturbance of asbestos.
6. Pre-construction assessment for the presence of hazardous building materials and equipment that may be directly impacted by renovation activities.
7. A proactive plan for the abatement of accessible asbestos-containing materials (including in the areas above acoustic tiles) and PCB-containing equipment and ballasts.
8. Awareness training for building maintenance staff on asbestos safety.
9. Reviewing and updating as changes occur to the location of hazardous materials in the building every three (3) years.

Important Notes:

i. If the hazardous materials inventory was done at the time of acquisition and, if no other hazardous building materials were brought into the building, or found, and, if no changes in building materials have been implemented since the original survey, then a formal statement to this effect will be sufficient for verification purposes. The statement must clearly reference the previous hazardous materials survey and the policies that have been put in place to ensure that no additional hazardous materials have been brought into the building and that existing building materials have not been replaced.

ii. Buildings with multiple tenants must have a Hazardous Building Materials Survey that includes all tenant spaces. Building owners are responsible for ensuring that the building in its entirety is represented in the Hazardous Building Materials Survey.

iii. The laboratory performing the sample testing should be accredited by one of the following organizations: National Voluntary Laboratory Accreditation Program (NVLAP), American Industrial Hygiene Association (AIHA), the Canadian Association for Laboratory Accreditation (CALA), the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST), or equivalent.

iv. The person completing the hazardous building materials inventory and inspection must be competent based on the following criteria (aligned with the definition of various regional Occupational Health and Safety Acts):

- Adequate qualifications – the person has good working knowledge and understanding of the legislation surrounding hazardous materials (i.e. training certificates or educational background in hygiene, occupational health and safety, environmental engineering, building science or similar);
- Suitable training – the person must have training that is appropriate to conducting hazardous building materials inventories and which comply with regional minimum safety training requirements; and
- Sufficient experience – the person must have enough experience to safely perform the work without supervision or with only a minimal degree of supervision.

v. Demonstration of implementation is required.

vi. The program can be common to a portfolio or campus of buildings however implementation must be building-specific.

BEST Practice 10(B): Tenant Hazardous Chemical Products Management Program

Is a Tenant Hazardous Chemicals Monitoring Program in place?	
Explanation & Evaluation	**Description:** Tenants, as well as building owners, are required to have an up-to-date Hazardous Chemical or Use-Related Product Inventory. Building owners must keep an up-to-date record of all tenant Hazardous Chemical or Use-Related Product Inventories. **Requirements:** At a minimum, the Tenant Hazardous Chemicals Monitoring Program must address the following: • Periodic (at least annual) tenant inventory including location and approximate quantities of hazardous chemicals in tenant areas. This inventory can be conducted by the tenant or the property owner. In all cases, the results of the inventory must be provided to the building owner/manager. • Provision of Safety Data Sheets on all hazardous chemicals in tenant areas. • Periodic checks on the safe storage and use of the chemicals or use-related products (at least annual).

REQUIREMENT DETAILS: Tenant Hazardous Chemicals Monitoring Program

This question is a BEST Practice and is required for all levels of certification.

Tenants, as well as building owners, are required to have an up-to-date Hazardous Chemical or Use-Related Product Inventory. It is an industry best management practice for building owners to keep an up-to-date record of all tenant Hazardous Chemical or Use-Related Product Inventories.

A use-related product is defined as anything that is brought into the building and can include a hazardous chemical. A hazardous chemical is defined as a dangerous good which could be a solid, liquid, or gas that can harm people, other living organisms, property, or the environment.

At a minimum, the Tenant Hazardous Chemicals Monitoring Program must address the following:

1. Periodic (at least annual) tenant inventory including location and approximate quantities: There are no specific competency requirements for compiling a Hazardous Chemical or Use-Related Product Inventory however, the individual conducting the inventory must have good working knowledge and understanding of the applicable regulatory requirements, including at a minimum, the Global Harmonised System.
2. Provision of Safety Data Sheets: A Safety Data Sheet (SDS), as required by this BEST Practice, is a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product. It is an essential starting point for the development of a complete health and safety program. It also contains information on the use, storage, handling and emergency procedures related to the hazards of the material.
3. Periodic checks on the safe storage and use of the chemicals or use-related products: Hazardous products should be stored in rooms with proper ventilation, controlled temperatures, drain protection and adequate shelf space. Containers should be capped to avoid possible spills and fumes, properly labelled and kept in securely locked areas.

BEST Practice 11: Green Cleaning Program

Is a Green Cleaning Program in place at the building?	
Explanation & Evaluation	**Description:** A Green Cleaning Program emphasizes the use of environmentally preferred products, maintenance of cleaning equipment and effective cleaning practices. **Requirements:** Develop a Green Cleaning Program for the facility. It must include all following components: • 50% of all cleaning products and supplies must be certified by one of the following third-party organizations: EcoLogo, Green Seal, US EPA Safer Choice, GREENGUARD, Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), or Sustainable Forest Management Standard (SFMI). • Standard operating procedures (SOP) for cleaning activities. • Cleaning logs (describing the activities carried out, the times they were carried out and by whom). • Training for building cleaning staff. • Annual review and updating of the overall program to ensure it still meets the objectives. Where custodial services are contracted, communicate custodial goals and green cleaning initiatives to the contracted company. The contracted company must provide the building/manager with documentation showing the same information outlined in the requirements. Demonstration of implementation is required. The program can be common to a portfolio or campus of buildings however implementation must be building specific. **Additional Information:** The Accepted Equivalent is available for buildings where cleaning is performed exclusively or partially by individual tenants. The Green Cleaning Program must be in place for areas where the building manager or owner is responsible for cleaning, and where tenants are responsible, a guidance document must be provided educating tenants on how to develop their own Green Cleaning Program.

REQUIREMENT DETAILS: Green Cleaning Program

This question is a BEST Practice and is required for all levels of certification.

Applicants may demonstrate compliance with the 50% third-party product certification requirement by providing copies of the inventory of all in-use, base building cleaning products specifically identifying the percentage of those carrying third-party certifications. Alternatively, compliance can also be demonstrated through the procurement policy along with a visual demonstration of a sample of products and supplies.

Contracted companies can demonstrate compliance with this specific requirement by providing a signed letter confirming the minimum threshold is in place.

Accepted Equivalent: Green Cleaning Program for Tenants

In the case where cleaning is performed *exclusively* by individual tenants, the following is required:

- The building owner or manager must provide tenants with guidelines on how to develop a Green Cleaning Program that meets the requirements listed in this BEST Practice. Although ensuring adherence by the tenants to this program is highly encouraged, it is not required to meet this BEST Practice.

In the case where *some* cleaning is performed by individual tenants and *some* by the building owner or manager, the following is required:

- For areas where tenants are responsible for cleaning: The building owner or manager must provide tenants with guidelines on how to develop a Green Cleaning Program that meets the requirements listed in this BEST Practice. Although ensuring adherence by the tenants to this program is highly encouraged, it is not required to meet this BEST Practice.

AND

- For areas where the building owner/manager is responsible for cleaning: The building owner or manager must create a Green Cleaning Program that meets the BEST Practice requirements and implement it in all areas where the building owner or manager is responsible for cleaning.

BEST Practice 12(B): Waste Reduction and Diversion Policy

Is a Waste Reduction and Diversion Policy in place at the building?	
Explanation & Evaluation	**Description:** The Waste Reduction and Diversion Policy represents a commitment from the organization or building management to continuously improve performance regarding the reduction and diversion of solid waste. **Requirements:** The Policy must include a statement committing the organization or building to continuous improvement in the reduction and diversion of waste. Address the prevention, diversion, and management of solid waste generated as a result of the following: • Day to day activities from all waste producing areas, including food service and retail; and • Periodic events such as conferences, catered meetings and functions, training, tenant relocation activities, construction, renovation and demolition projects, fit-ups, etc. The Policy (and any subsequent updates) must be dated and signed by Senior Management (an individual with decision-making abilities on budget expenditures). Demonstration of implementation is not required, nor is building-specific information. The policy can be common to a portfolio or campus of buildings.

This question is a BEST Practice and is required for all levels of certification.

In Canada only: Buildings that have achieved a certification through the 3RCertified program can answer "Yes" and show their certification to the Verifier. 3RCertified is a certification program for buildings in the Industrial, Commercial and Institutional (IC&I) sectors that reviews how organizations manage solid waste reduction and diversion operations.

BEST Practice 15: Environmental Policy

Is an overarching Environmental Policy guiding the building's management?	
Explanation & Evaluation	**Description:** An Environmental Policy or vision establishes the direction building management wishes to take on future improvements in the building's environmental performance. Such formal statements can guide decision making and establish credible leadership to adequately address environmental issues that could result in improved operations, reductions in operational expenses, and improved management-tenant relationships. **Requirements:** Create an overarching Environmental Policy (or vision) which contains the following components: • A specific objective or vision statement for each of the ten (10) categories in the assessment. In each case, provide a clear objective or vision on what your organization (or building) hopes to achieve within a specified timeline (e.g., achieve a 5% reduction in energy consumption in five years; perform the building's first air quality audit, etc.). • Enter the vision statement for each assessment category in the space provided in the online portal. **Additional Information:** The statements provided for each category can pull directly from objectives established in previous questions in this assessment. This BEST Practice seeks to bring them together into an overarching document. Demonstration of implementation is not required, nor is building-specific information. The policy can be common to a portfolio or campus of buildings.

This question is a BEST Practice and is required for all levels of certification.

BEST Practice 16: Occupant Environmental Communication Program

Is an Occupant Environmental Communication Program in place at the building?	
Explanation & Evaluation	**Description:** Increasing building occupant awareness and engagement in environmental and sustainable practices can have a significant positive or negative impact on the performance of the building. Improving the environmental performance of the building can lead to many positive outcomes for building management, staff and tenants, including but not limited to lower operational costs, lower utility bills, improved indoor air quality, improved management-tenant relationships, etc. **Requirements:** The Occupant Environmental Communication Program must address the following components: • Selecting the communication strategies that will be used; • Selecting the activities that will be encouraged; • Identifying responsible individuals among management for moving each aspect of the plan forward; and • Creating a timeline for implementation. • Demonstrate that at least two (2) communication strategies have been implemented in the past 12 months. Demonstration of implementation is required. The program can be common to a portfolio or campus of buildings however implementation must be building-specific. Additional Information: *Occupants* are the permanent/regular occupants of the building, such as tenants and staff. If the building is owner-occupied, surveys should be directed to staff. Visitors to the building are not considered occupants.

REQUIREMENT DETAILS: Occupant Environmental Communication Program

This question is a BEST Practice and is required for all levels of certification.

Building management must have in place an Occupant Environmental Communication Program for communicating with tenants and building staff on environmental issues specific to the building. Components of this Program must have been implemented within the past 12 months.

Occupants are the permanent/regular occupants of the building, such as tenants and staff. If the building is owner-occupied, surveys should be directed to staff. Visitors to the building are not considered occupants.

The key aspects of effective communication are: **frequency, accuracy, comprehensiveness and inclusiveness**. To ensure that building occupants work together with building management to achieve environmental goals, regular communication must be executed. As such, the Program must clearly outline communication strategies, activities, responsibilities and timelines for implementation. The following communication framework must be evident:

- Communication strategies: clearly describe the communication strategies that will be used with tenants/occupants.
- Activities: clearly describe the activities/events that will be communicated to occupants (e.g., Earth Day event or energy awareness campaigns with “turn off your monitor” stickers).

- Responsibilities: clearly describe who will be responsible for each aspect of the Occupant Sustainability Communications Program.
- Timeline for implementation: clearly describe the timeline for implementation of all activities, events, and strategies put in place in the context of the Occupant Sustainability Communications Program.

The communication program must also include specific initiatives to effectively engage tenants and building staff around environmental/sustainability issues and encourage them to work with building management to drive performance improvements in the building. At least two (2) initiatives must have been implemented in the last 12 months. The table below provides suggestions on possible communication objectives and how they may be implemented (for guidance purposes only):

Objective	Possible Communication and Implementation Ideas
To increase engagement:	• Create a Management/Tenant task force or Green Team with all major stakeholders represented (e.g., tenant representatives, cleaners/janitors, and building management) to develop, promote, and implement environmental/sustainability initiatives. • Designate one or more of the Management Team to be the property's Environmental Ambassador to lead the program. • Hold tenant meetings to educate them about the new environmental program. • Develop a calendar that highlights the year's planned engagement opportunities with tenants or building occupants. Send an announcement letter to each tenant.
If you want to launch an event:	• Host environmental/sustainability related events or competitions for occupants and tenants: ○ Sustainable commuting challenges; battery/lightbulb/electronic recycling drives. ○ BBQs (waste free if possible) or other functions to celebrate global events such as Earth Week in April, Energy Conservation Week in May, Waste Reduction Week in October.
If you want to incentivize new behaviour:	• Establish incentive programs to promote participation in environmentally preferable/sustainable practices and performance improvements: ○ Rewards and recognition for individuals and/or tenant organizations who are implementing sustainable best practices, ○ Discounts or financial incentives for tenants and building staff to encourage more sustainable choices/behaviours (such as discounted transit passes, discounts to local businesses that provide environmentally preferable products or services, or financial incentives for building staff who bike to work).

If you want to relay management's activities and results:	• Post and/or distribute and/or e-mail notices of audit results, new environmental programs and policies, performance summaries (for building energy or water consumption). • Create a building website highlighting the environmental performance of the building. • Regularly communicate environmental/sustainability goals (related to the building's sustainability policy/statement), achievements, and performance improvement tips to tenants and building occupants through a variety of relevant communications channels: o Newsletters, eNews, Memos. o Lobby/Common Area Posters, Screens or central Communications Board. o Elevator Messaging (e.g., ENN). o Website and Social Media (e.g., Twitter, Facebook). o Tenant-Landlord Collaboration Opportunities

Important Note:

In the case where the applicant has developed an Energy, Water or Waste Communication Program to comply with previous BEST Practices, these plans cannot be reused here. Additional communication efforts will be required to meet these BEST Practices. The topic may be the same, but the scope or objective must be broadened to qualify.